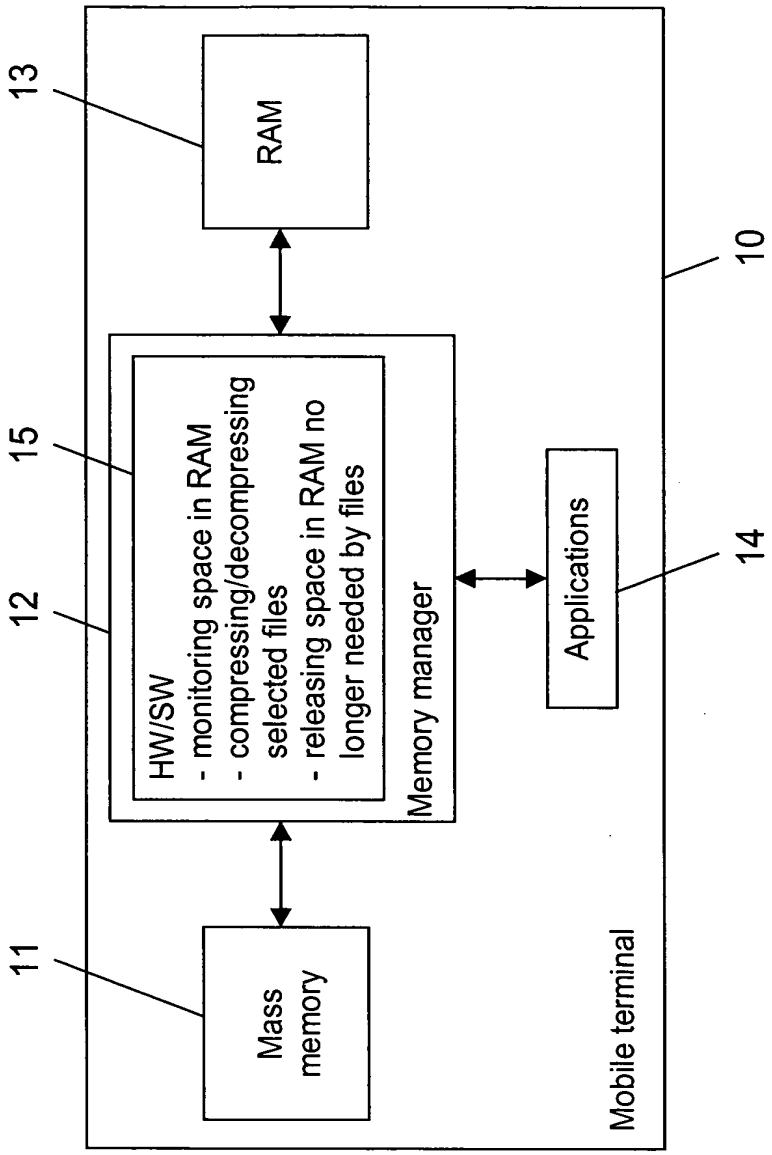
13
RAM
10
15
HW/SW
- monitoring space in RAM
- compressing/decompressing selected files
- releasing space in RAM no longer needed by files
12
Memory manager
Applications
14
11
Mass memory
Mobile terminal

Fig. 1

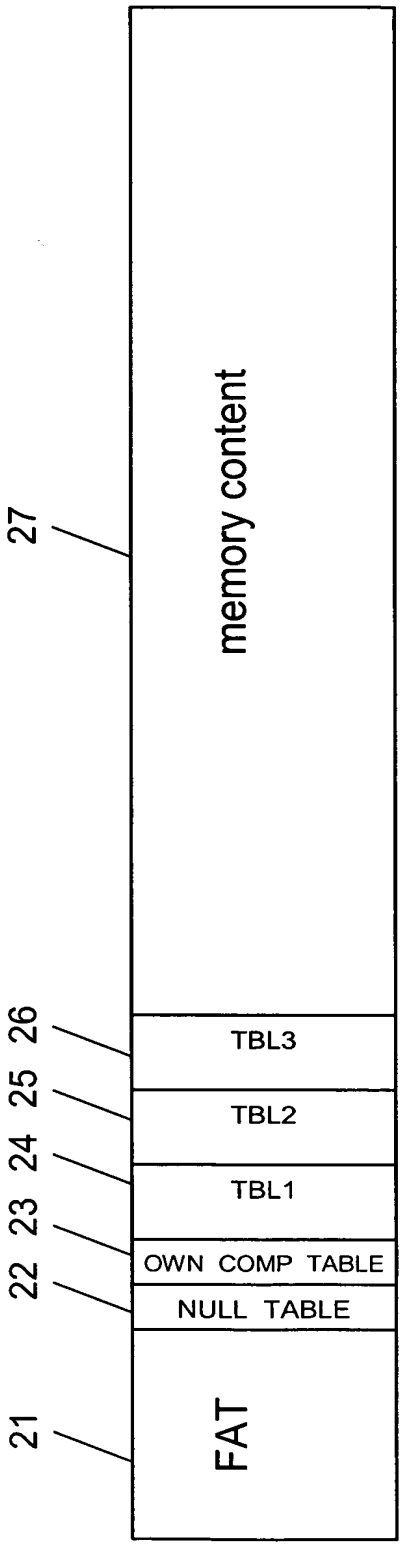
27
memory content
26
TBL3
25
TBL2
24
TBL1
23
OWN COMP TABLE
22
NULL TABLE
21
FAT

Fig. 2

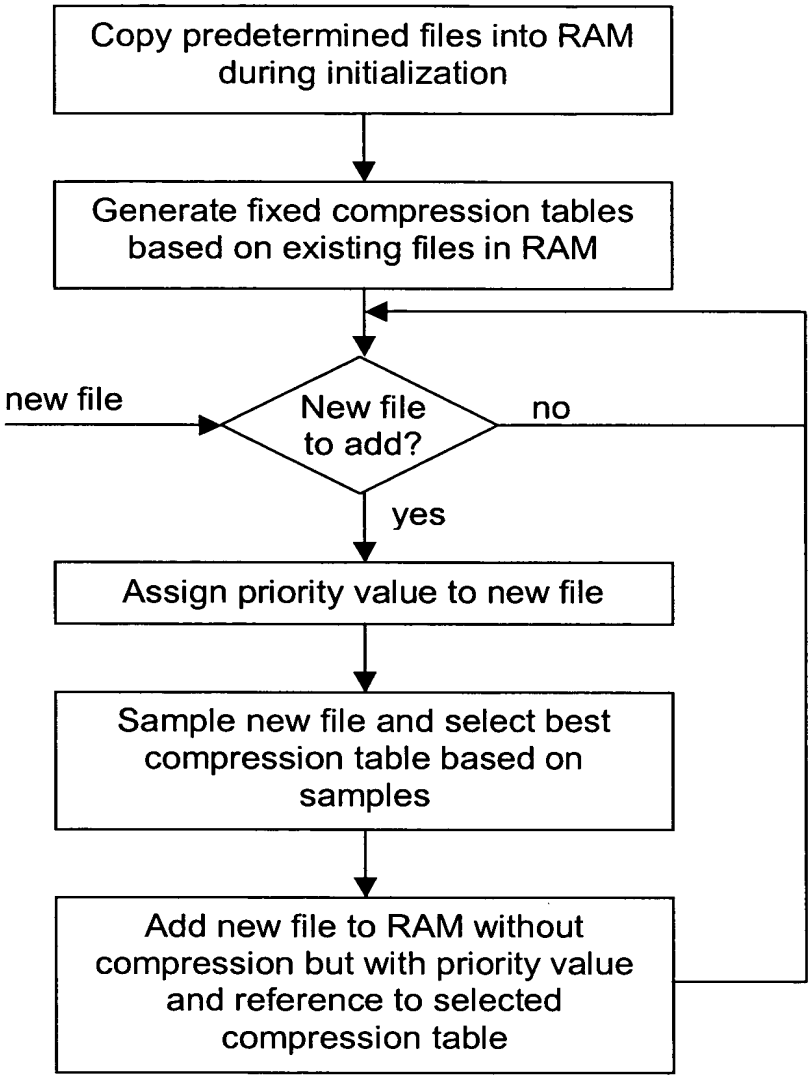
Copy predetermined files into RAM during initialization
Generate fixed compression tables based on existing files in RAM
new file
New file to add?
no
yes
Assign priority value to new file
Sample new file and select best compression table based on samples
Add new file to RAM without compression but with priority value and reference to selected compression table

Fig. 3

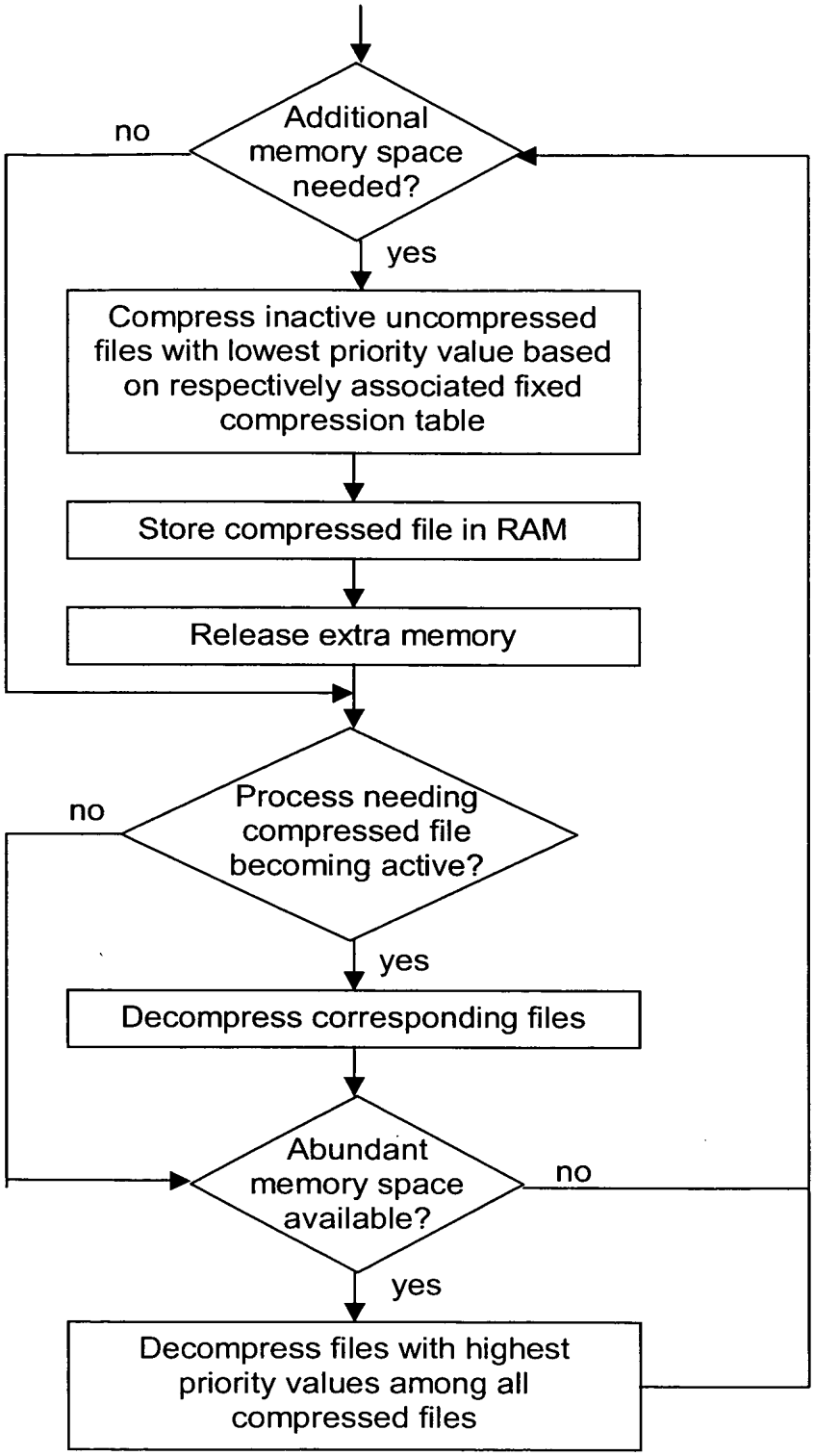
Additional memory space needed?
no
yes
Compress inactive uncompressed files with lowest priority value based on respectively associated fixed compression table
Store compressed file in RAM
Release extra memory
Process needing compressed file becoming active?
no
yes
Decompress corresponding files
Abundant memory space available?
no
yes
Decompress files with highest priority values among all compressed files

Fig. 4

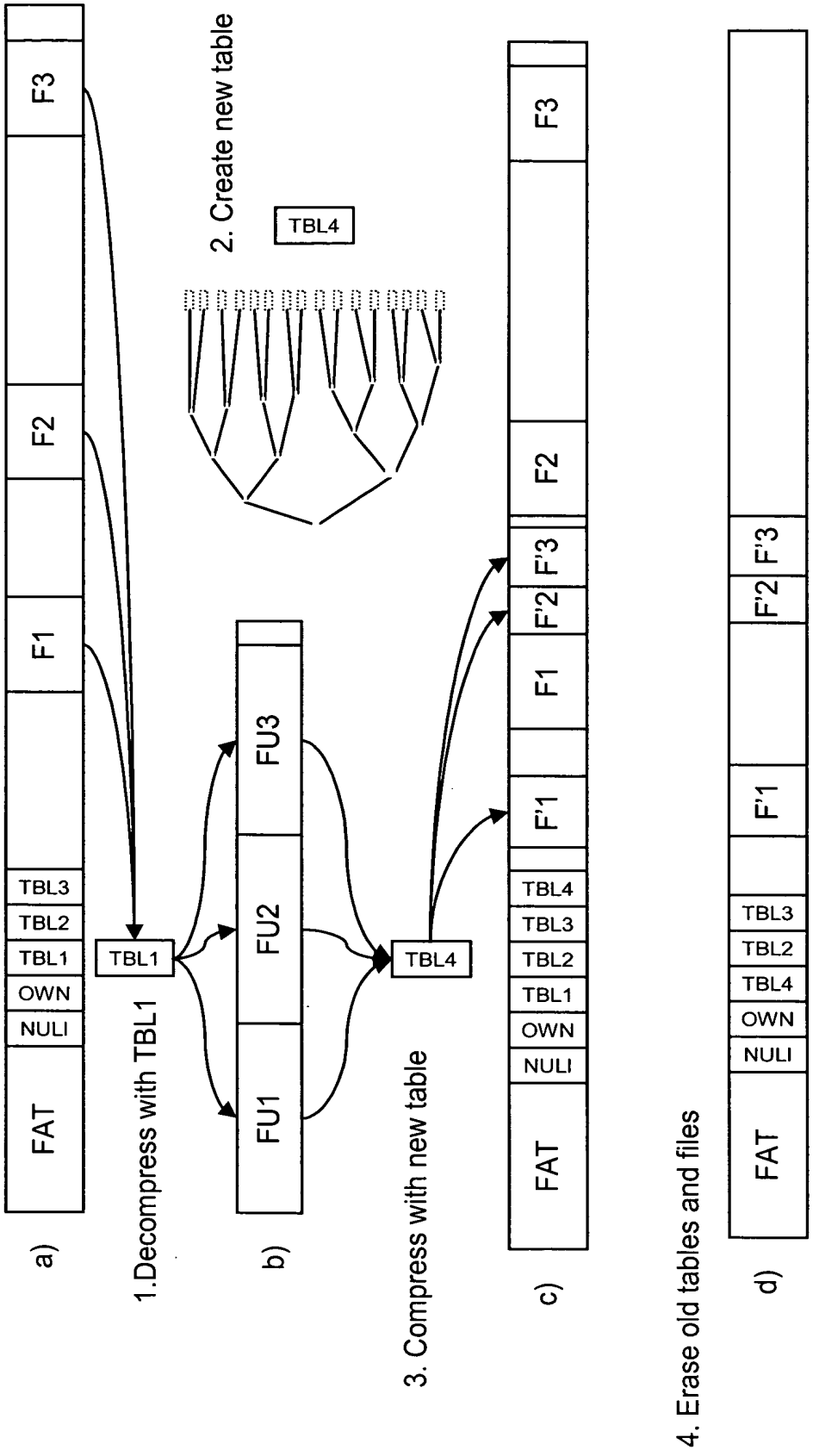
a)
FAT
NULI
OWN
TBL1
TBL2
TBL3
F1
F2
F3
1.Decompress with TBL1
TBL1
b)
FU1
FU2
FU3
2. Create new table
TBL4
3. Compress with new table
TBL4
c)
FAT
NULI
OWN
TBL1
TBL2
TBL3
TBL4
F'1
F1
F'2
F'3
F2
F3
4. Erase old tables and files
d)
FAT
NULI
OWN
TBL4
TBL2
TBL3
F'1
F'2
F'3

Fig. 5

a) File = "3 7 13 56 12 3 3 . . . ." (bits per word)

b)	Word:	1	2	3	4	5	. . .					
c)	Occurrences:	21	27	29	13	16	. . .					
d)	Word:	3	2	1	5	4	. . .					
e)	Occurrences:	29	27	21	16	13	. . .					
f)	CodeBits= [	2	2	3	3	4	4	4	4	5	5	. . .]
g)	CompressedBits=	2*29 +	2*27 +	3*21 +	3*16 +	4*13 +	. . .					

Fig. 6

a)	Weight:	[	**4**	4	**2**	**2**	1	**1**	1	1	]
b)	FixedTableIndex:	[	**56**	14	32	**6**	4	49	38	19	]
c)	CurrentTableIndex:	[	29	16	**56**	51	7	**6**	22	27	]
d)	ck =	4 * 2 + 2 * 1 = 10									

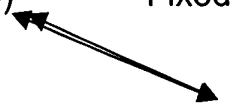

Fig. 7

a)	FixedTreeIndex =	[	7	1	5	4	2	. . .	]		
b)	Word:		1	2	3	4	5	6	7	8	. . .
c)	Occurrences:		19	21	15	19	22	11	10	13	. . .
d)	Word:		5	2	1	4	3	8	7	6	. . .
e)	Occurrences:		22	21	19	19	15	13	10	11	. . .
f)	Ordered:		11	22	15	19	21				. . .
g)	CodeBits =	[	2	2	3	3	4	4	4	4	. . .]
h)	CompressedBits =		2*11 +	2*22 +	3*15 +	3*19 +	4*21 +	. . .			

Fig. 8

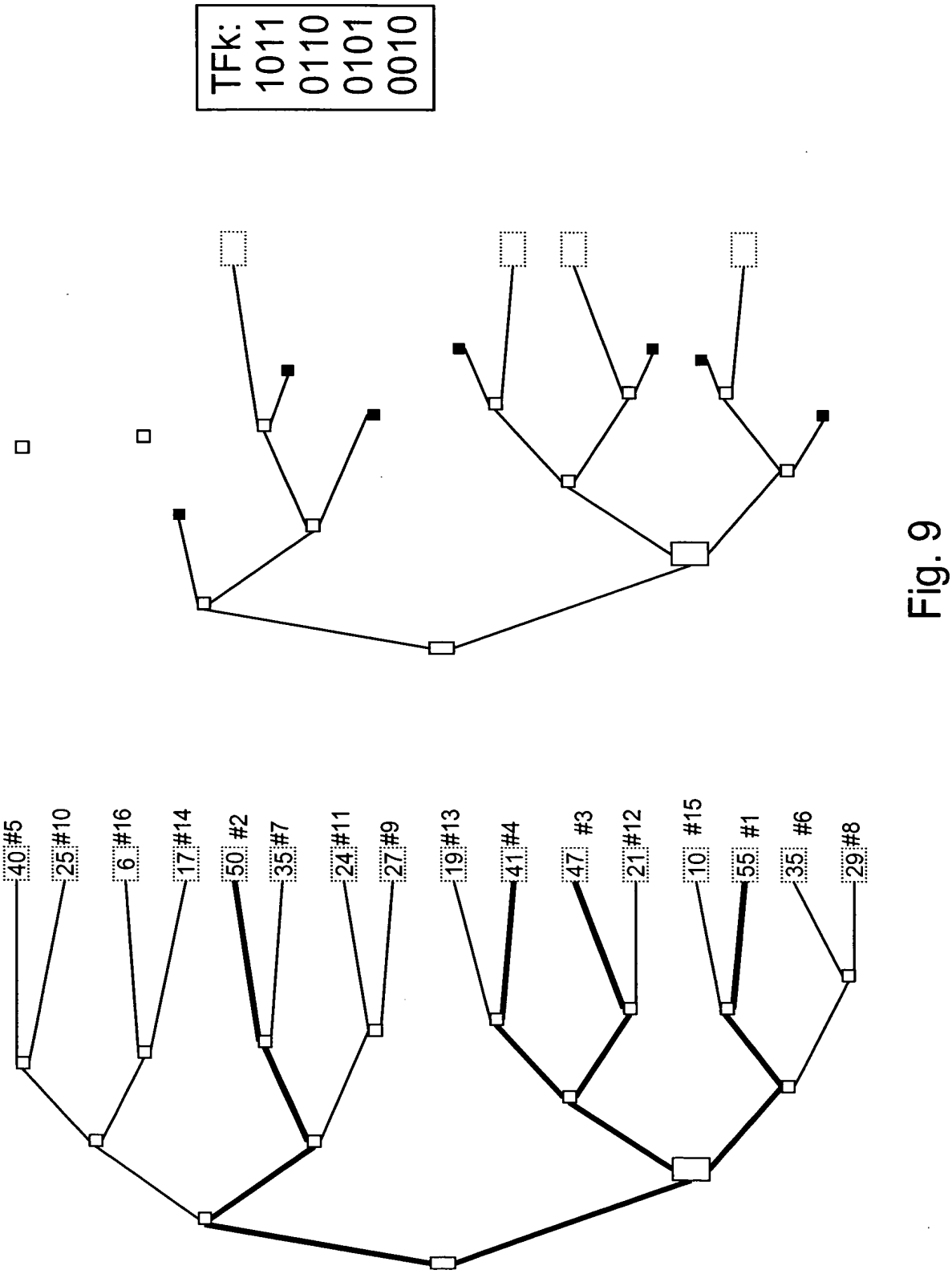
TFk:
1011
0110
0101
0010
40 #5
25 #10
6 #16
17 #14
50 #2
35 #7
24 #11
27 #9
19 #13
41 #4
47 #3
21 #12
10 #15
55 #1
35 #6
29 #8

Fig. 9